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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,986	01/25/2002	Byung Taek Kim	2336-096	7638

7590

12/23/2002

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EXAMINER

BETTENDORF, JUSTIN P

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 12/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/054,986

Applicant(s)

KIM ET AL.

Examiner

Justin P. Bettendorf

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second coil of the first inductor portion being wound in a different direction from the second coil of the adjacent coil portion must be shown or the feature(s) canceled from the claim(s) {e.g., figure 2 appears to show 27''a and 27''b wound in the same direction and not opposite as claimed and described⁷}. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

1. Claims 1-9 are objected to because of the following informalities: Each of these claims recites "array **type**" which the examiner suggests should be changed by deleting "type" and placing "array" after "filter" such that the preamble of claim 1, for example, reads --A[n array type] noise reduction filter array--. The term "type" may cause some confusion [see MPEP 2173.05(b)E.]. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art Figure 1a and description thereof (hereinafter "AAPA Fig. 1a") in view of Tokuda United States Patent No. 5,578,981.

The AAPA Fig. 1a discloses a filter array comprising filters 10a, 10b. Ground conductors 12, 13 are above and below the inductors 17a, 17b. Capacitor portions 15a, 15b are above the ground conductor 13 and capacitor portions 14a, 14b are below the ground conductor 12. However, the AAPA Fig. 1a does not show the second coil of inductor portion 17a being wound in an opposite direction of a second inductor portion 17b.

The Tokuda reference discloses in figure 1 an inductor array with an inductor portion 2a coiled in a clockwise direction with the adjacent inductor portion 2b coiled in a counter-clockwise direction, which reduces cross-talk over other arrangements (see col. 4, lines 3-24). The conductors 12 and 13 (figs. 3, 4) may be arbitrarily considered "the first coil" while the conductors 14 and 15 (figs. 5, 6) may be considered "the second coil" of the first inductor portion 2a (these two "coils" **approximately** have the same inductance value because each contains two conductors). The adjacent conductor portion 2b has a "first coil" formed by

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conductors 16, 17 (figs. 8 and 9) while conductors 18, 19 (figs. 10 and 11) form the "second coil", which is wound in the opposite direction from the conductors 14, 15 (also, these two "coils" **approximately** have the same inductance value because each contains two conductors).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted the coil array of Tokuda in place of the coil array in AAPA Fig. 1a noise reduction filter because such a modification would have been considered a mere substitution of art-recognized equivalent coil arrays that would have advantageously reduced cross-talk.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA Fig. 1a in view of Tokuda as applied to claim 1 above, and further in view of Shimura et al. JP 6-151245.

As noted above, the AAPA Fig. 1a/Tokuda combination shows the claimed filter array but shows two ground conductors with the capacitor portions formed either above or below and not just one ground conductor with the capacitor portions arranged above and below the ground conductor.

The Shimura et al.(e.g. figures 1 and 4) reference shows a capacitor filter array that has the ground plate between the capacitor electrodes thereby reducing cross-talk (abstract of Shimura).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have substituted the art-recognized equivalent capacitor array of Shimura et al. in place of the capacitor array in the LC filter array of AAPA Fig. 1a/Tokuda because such a modification would have been considered a mere substitution of art-recognized equivalent capacitor arrays that would have advantageously further decreased cross-talk.

6. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA Fig. 1a in view of Tokuda as applied above, and further in view of Ohkubo United States Patent No. 5,392,019.

As noted above, the AAPA Fig. 1a/Tokuda combination shows the claimed filter array but does not show isolation means between the first and second coils.

The Ohkubo reference discloses in figure 1 guard electrodes 21-24 (with via holes 32, 34, 36, 38 on the guard "isolator" conductor layers 2, 4, 6, and 8) between coil conductors in order to electrically shield (i.e. isolate) the conductors from each other thereby advantageously reducing stray capacitance (see abstract and col. 1, lines 31-37).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to have placed guard "isolation" electrodes (having via holes for the coil conductors in the isolation layer) between the coil conductors in the filter array of AAPA Fig. 1a/Tokuda as taught by Ohkubo because such a modification would have advantageously reduced stray capacitance between the coils.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Kaneko et al. United States Patent No. 5,602,517 discloses a filter with oppositely wound coils to reduce cross-talk between the coils (see col. 1, lines 28-30).

b. Uchida et al. United States Patent No. 6,476,689 discloses an LC filter with coils being wound in different directions.

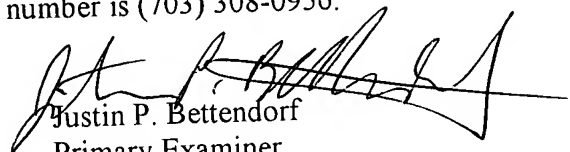
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- c. Kumagai et al. United States Patent No. 6,147,573 discloses in figure 9C an LC with a via hole32 passing through a ground electrode layer 20A9.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin P. Bettendorf whose telephone number is (703) 308-2780. The examiner can normally be reached on 6:00-3:30 (M-F, 1st Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (703) 308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Justin P. Bettendorf
Primary Examiner
Art Unit 2817

jpb
December 19, 2002